

and said connecting layer being formed with a conductive resin at least injected into a gap between said leading end portion and said electrode.

19. (Twice Amended) The piezoelectric resonator unit according to claim 14, [prior to connecting said leading end portion and said electrode.] said connecting layer being formed with a conductive resin coated onto said leading end portion or said electrode.

REMARKS

Claims 1, 3-14 and 16-26 are pending. By this Amendment, claims 1, 4, 6, 8, 9, 11, 14, 17 and 19 are amended are for clarity. No new matter is added.

Entry of the amendments to claims is proper under 37 C.F.R. §1.116 because the amendments: (a) place the application in condition for allowance, for all the reasons discussed herein; and (b) do not raise any new issues requiring further search for consideration. That is, as discussed above, the amendments are merely for clarification purposes as requested by the Office Action, and as discussed during the October 4 personal interview.

Applicant gratefully acknowledge the courtesies extended to Applicant's representative during the October 4 interview. During the interview, the distinguishing features of the claims were discussed, as further set forth below.

The Office Action rejects claims 1, 3-7, 14 and 16-20 under 35 U.S.C. §112, second paragraph. The Office Action asserts that there is no description or illustration in the original disclosure of a structure where the piezoelectric resonator is attached to an end of the U-shaped opening "and/or attached on the side facing the support element." This rejection and this assertion are respectfully traversed.

Claims 1, 8 and 14 recite a piezoelectric resonator element being attached to leads at an end of a substantially U-shaped opening of the leading end portion on a side of the

piezoelectric resonator element which faces the supporting member. As agreed during the interview, the claimed features are shown at least in Figs. 1(A)-2 of the application. Accordingly, Applicant requests withdrawal of the rejection of claims 1, 8 and 14 and claims 3-7 and 16-19 depending therefrom under 35 U.S.C. §112.

The Examiner's assertions concerning claims 4-6 and 7-19 are respectfully traversed. As agreed by the Office Action, a rejection based on the failure to satisfy this requirement is appropriate only where Applicant has stated, somewhere other than the application as filed, that the invention is somewhat different than what is defined by the claims.

Furthermore, claims 4, 6, 9 and 11 are amended for clarity, as requested by the Office Action, and as agreed during the interview. For example, claim 4 recites a fixing layer made of a UV-setting type resin coated thereunto having a short setting time. As agreed during the interview, the claimed resonator and resonator unit are not an intermediate product but comprises all of the claimed features, including a fixing layer having a short setting time.

Accordingly, claims 4 and 17, which recite a fixing layer, are not indefinite. Applicant requests withdrawal of the rejection of claims 4 and 17, and claims 5-6 and 18-19 depending therefrom, under 35 U.S.C. §112, second paragraph.

Further, Applicant submits that the Office Action's rejection of method claims 8-12 for similar reasons is improper. That is, because claims 8-13 are directed to a method, a rejection of the "product" as asserted by the Office Action is improper. Further, because claims 7 and 14-16 do not even recite a fixing layer, the rejection of claims 7 and 14-16 for similar reasons is also improper. Applicant requests withdrawal of the rejection of claims 7-16 under 35 U.S.C. §112, second paragraph.

The Office Action rejects claims 1, 2, 4-7, 14, 15 and 17-20 under 35 U.S.C. §102(a) over Ogiso (U.S. Patent No. 5,867,074), Nakata (U.S. Patent No. 4,639,632), JP-A 6-303077 (JP077) and JP-U 3-107821 (JP821). This rejection is respectfully traversed.

Applicant submits that none of the applied references to Ogiso, Nakata, JP077 and JP821 discloses or suggests a plurality of leads being provided with a flat leading end portion which opens in a substantially U-shaped opening toward a leading end, connected substantially in parallel with an electrode, the electrode opposing one surface of the piezoelectric resonator element, and a connecting layer being formed with a conductive resin between the leading end portion and the electrode, and the piezoelectric resonator element being attached to leads at an end of a substantially U-shaped opening of the leading end portion on a side of the piezoelectric resonator element which faces the supporting member, so that an edge of the piezoelectric resonator element on the side which faces the supporting member may be positioned at the end of the substantially U-shaped opening and that the piezoelectric resonator element is supported by the leads so that a gap is formed between the supporting member and the piezoelectric resonator element, as recited in claim 1.

Ogiso discloses, in Fig. 16, for example, a lead 25 with a V-shaped connected end 25c deformed into a flat shape and attached to a connection land 7 by a conductive adhesive agent 26. However, Ogiso does not disclose that a piezoelectric resonator element is attached to leads at an end of a substantially U-shaped opening of the leading end portion on a side of the piezoelectric resonator element which faces the supporting member, so that an edge of the piezoelectric resonator element on the side which faces the supporting member may be positioned at the end of the substantially U-shaped opening, as recited in claim 1. Thus, with the teachings of Ogiso, the shock resistance becomes different from each piezoelectric resonator element, for example.

Nakata also does not disclose or suggest the features recited in claim 1. In fact, Nakata does not disclose or suggest any lead provided with flat leading end portion which opens in a substantially U-shaped opening toward a lead end. Instead, Nakata discloses, in Fig. 8 for example, lead-in conductors 7 having an arcuate projection 201 bonded on a side to a quartz plate 8 by an insulating adhesive or sealing material or the like.

JP077 also does not disclose or suggest the features recited in claim 1. JP077, in Fig. 1a, for example, discloses a lead 6 with a fork-shaped opening attached to the resonator element 1 by a bonding element 3. However, JP077 does not disclose that a piezoelectric resonator element is attached to the leads at an end of the substantially U-shaped opening of the leading end portion on a side which faces the supporting member, so that an edge of the piezoelectric resonator element on the side facing the supporting member may be positioned at the end of the substantially U-shaped opening, as recited in claim 1.

JP821 also does not disclose or suggest the features recited in claim 1. JP821, in Fig. 4, for example, discloses leads 2 and 3 with a fork-shaped opening 15 attached to the resonator element 4 by a bonding element. Thus, in JP821, the shock resistance becomes different from each piezoelectric resonator element.

Contrary to the applied references, in the piezoelectric resonator as claimed in claim 1, at a substantially U-shaped opening of the leading end portion on an end which faces a supporting member, a piezoelectric resonator element is attached so that the supporting member side edges of the piezoelectric resonator element are substantially matched. Thus, the gap between the supporting member and the piezoelectric resonator element is constant, and a spring structure, for example, is made uniform. As a result, a piezoelectric resonator element which can absorb a strong shock during a fall or the like can be implemented without having any irregularities in its shock resistance, for example.

The applied references do not disclose or suggest these features. As shown in Fig. 1 of JP077, for example, there is no gap between the supporting member and the piezoelectric resonator element, so that a rigid structure is provided instead of a spring structure of the claimed invention. Furthermore, in JP821, soldering is used for connection between the resonator and the lead, and thus a spring structure cannot be implemented.

For similar reasons, the applied references do not disclose a piezoelectric resonator element being attached to leads at an end of a substantially U-shaped opening of the leading end portion on a side which faces a supporting member, so that an edge of the piezoelectric resonator element on the side which faces the supporting member may be positioned at the end of the substantially U-shaped opening, as recited in claim 14.

Accordingly, claims 1 and 14 are not anticipated by Ogiso, Nakata, JP077 and JP821. Further, claims 4-7, depending from claim 1, and claims 17-20 depending from claim 14 also are not anticipated by Ogiso, Nakata, JP077 and JP821. Applicant requests withdrawal of the rejection of claims 1, 4-7, 14 and 17-20 under 35 U.S.C. §102(a). Because claims 2 and 15 are canceled, the rejection of claims 2 and 15 are moot, and thus, Applicant requests withdrawal of the rejection of claims 2 and 15 under 35 U.S.C. §102.

The Office Action rejects claims 3 and 16 under 35 U.S.C. §103(a) over Ogiso or JP821 and JP-A 3-113909 (JP909). This rejection is respectfully traversed.

As discussed above, Ogiso and JP821 do not disclose or suggest the features of claims 1 and 14. JP909 also does not disclose or suggest the features of claim 1 missing from Ogiso and JP821. In fact, JP909 does not disclose or suggest any substantially U-shaped opening.

Thus, even if combined, Ogiso, JP821 and JP909 do not disclose or suggest the features of claims 1 and 14. Because claim 3 depends from claim 1 and claim 16 depends

from claim 14, claims 3 and 16 would not have been obvious over Ogiso, JP821 and JP909.

Applicant requests withdrawal of the rejection of claims 3 and 16 under 35 U.S.C. §103.

For at least the above reason, Applicant submits that the application is in condition for allowance. Prompt consideration and due allowance are earnestly solicited.

Should the Examiner believe any further is desirable in order to place the application in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Thu Anh Dang  
Registration No. 41,544

JAO:TAD/gam

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OLIFF & BERRIDGE, PLC  
P.O. Box 19928  
Alexandria, Virginia 22320  
Telephone: (703) 836-6400

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